# Bride Hunting Problem (TCS Codevita)

# Bride Hunting Problem

Bride Hunting Problem is one of the problem that was asked in previous year TCS Codevita Exam. In this problem you have to find the bride for Sam who has maximum qualities among the given 8 qualities. On bride hunting, he may find more than one contenders to be his wife.



## Problem Description

Sam is an eligible bachelor. He decides to settle down in life and start a family. He goes bride hunting.He wants to marry a girl who has at least one of the 8 qualities mentioned below:-

1. The girl should be rich.
2. The girl should be an Engineer/Doctor.
3. The girl should be beautiful.
4. The girl should be of height 5.3″.
5. The girl should be working in an MNC.
6. The girl should be an extrovert.
7. The girl should not have spectacles.
8. The girl should be kind and honest.

He is in search of a bride who has some or all of the 8 qualities mentioned above. On bride hunting, he may find more than one contenders to be his wife.

In that case, he wants to choose a girl whose house is closest to his house. Find a bride for Sam who has maximum qualities. If in case, there are more than one contenders who are at equal distance from Sam’’s house; then

* **print ““Polygamy not allowed””.**

In case there is no suitable girl who fits the criteria then

* **print “”No suitable girl found””**

Given a Matrix N\*M, Sam’s house is at (1, 1). It is denoted by 1. In the same matrix, the location of a marriageable Girl is also denoted by 1. Hence 1 at location (1, 1) should not be considered as the location of a marriageable Girl’s location.

The qualities of that girl, as per Sam’’s criteria, have to be decoded from the number of non-zero neighbors (max 8-way) she has. Similar to the condition above, 1 at location (1, 1) should not be considered as the quality of a Girl. See Example section to get a better understanding.

Find Sam, a suitable Bride and print the row and column of the bride, and find out the number of qualities that the Bride possesses.

NOTE: – Distance is calculated in number of hops in any direction i.e. (Left, Right, Up, Down and Diagonal)

**Constraints**

* 2 <= N,M <= 10^2

**Input Format**

* First Line contains the row (N) and column (M) of the houses.
* Next N lines contain the data about girls and their qualities.

**Output**

* It will contain the row and column of the bride, and the number of qualities that Bride possess separated by a colon (i.e. :).

**Explanation**

**Example 1**

**Input**:

2 9

1 0 1 1 0 1 1 1 1

0 0 0 1 0 1 0 0 1

**Output**:

1:7:3

**Explanation**:

The girl and qualities are present at (1,3),(1,4),(1,6),(1,7),(1,8),(1,9),(2,4),(2,6),(2,9).

* The girl present at (1,3) has 2 qualities (i.e. (1,4)and (2,4)).
* The girl present at (1,4) has 2 qualities.
* The Bride present at (1,6) has 2 qualities.
* The Bride present at (1,7) has 3 qualities.
* The Bride present at (1,8) has 3 qualities.
* The Bride present at (1,9) has 2 qualities.
* The Bride present at (2,4) has 2 qualities.
* The Bride present at (2,6) has 2 qualities.
* The Bride present at (2,9) has 2 qualities.
* As we see, there are two contenders who have maximum qualities, one is at (1,7) and another at (1,8).

The girl who is closest to Sam’s house is at (1,7). Hence, she is the bride.

Hence, the output will be 1:7:3.

**Example 2**

**Input**:

6 6

1 0 0 0 0 0

0 0 0 0 0 0

0 0 1 1 1 0

0 0 1 1 1 0

0 0 1 1 1 0

0 0 0 0 0 0

**Output**:

4:4:8

**Explanation**:

The bride and qualities are present at (3,3),(3,4),(3,5),(4,3),(4,4),(4,5),(5,3),(5,4),(5,5)

* The Bride present at (3,3) has 3 qualities (i.e. (3,4),(4,3) and (4,4)).
* The Bride present at (3,4) has 5 qualities.
* The Bride present at (3,5) has 3 qualities.
* The Bride present at (4,3) has 5 qualities.
* The Bride present at (4,4) has 8 qualities.
* The Bride present at (4,5) has 5 qualities.
* The Bride present at (5,3) has 3 qualities.
* The Bride present at (5,4) has 5 qualities.
* The Bride present at (5,5) has 3 qualities.

As we see, the girl present in (4,4) has maximum number of Qualities. Hence, she is the bride.

Hence, the output will be 4:4:8.

## Solution for Bride Hunting Problem

import java.util.Scanner;  
  
public class BrideHuntingProblem  
{  
  
 public static void main (String[]args)  
 {  
  
 Scanner sc = new Scanner (System.in);  
 System.out.println ("Enter the row");  
 int r = sc.nextInt ();  
 System.out.println ("Enter the col");  
 int c = sc.nextInt ();  
 int fc = -1; //bride with max no of qualities  
 int fr = 1; //position of best bride  
  
 int fc1 = 1; //position of best bride  
 int[][] a = new int[r][c];  
 int i;  
 int j;  
 for (i = 0; i < r; i++)  
 {  
 for (j = 0; j < c; j++)  
 {  
 a[i][j] = sc.nextInt ();  
 }  
 }  
 for (i = 0; i < r; i++)  
 {  
 for (j = 0; j < c; j++)  
 {  
 if (a[i][j] == 1)  
 { //bride exists  
 int cnt = 0; //no of qualities  
 if (j + 1 < c && a[i][j + 1] == 1) //same row right  
 cnt++;  
 if (j - 1 >= 0 && a[i][j - 1] == 1) //same row left  
 cnt++;  
 if (i + 1 < r)  
 { //if you can go down  
 if (a[i + 1][j] == 1) //bottom row  
 cnt++;  
 if (j + 1 < c && a[i + 1][j + 1] == 1) //bottom row right  
 cnt++;  
 if (j - 1 >= 0 && a[i + 1][j - 1] == 1) //bottom row left  
 cnt++;  
  
 }  
 if (i - 1 >= 0)  
 { //if you can go up  
 if (a[i - 1][j] == 1) //top row  
 cnt++;  
 if (j + 1 < c && a[i - 1][j + 1] == 1) //top row right  
 cnt++;  
 if (j - 1 >= 0 && a[i - 1][j - 1] == 1) //top row left  
 cnt++;  
 }  
  
 if (cnt > fc)  
 { //if bride has most qualities..  
 fc = cnt;  
 fr = i;  
 fc1 = j;  
 }  
 else if (cnt == fc) //if bride has equal no of qualities compared to best bride..  
 {  
 if (Math.abs (fr - 1 + fc1 - 1) > Math.abs (i - 1 + j - 1)) //find if current bride has low distance  
 {  
 fr = i;  
 fc1 = j;  
  
 }  
 }  
  
 }  
 }  
 }  
  
 System.out.println ((fr + 1) + ":" + (fc1 + 1) + ":" + fc);  
 }  
}